

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method for maintaining filaments in position when manufacturing composite parts through a filament winding process, comprising the steps of:

applying resin impregnated filament (16) onto an elongate mandrel (12); and

winding yarn (32) onto the elongate mandrel (12) overlying the resin impregnated filament (16), to maintain the resin impregnated filament (16) in position and under tension.

2. The method as defined in Claim 1, the steps being sequentially repeated by applying alternating layers of resin impregnated filament (16) followed by yarn (32) to maintain each layer of resin impregnated filament (16) in position and under tension.

3. The method as defined in Claim 1, collars (24) with projecting spikes (26) being positioned in spaced relation on the mandrel (12) to assist in maintaining filament positioning and spacing, the filaments (16) extending between the respective collars (24) with filament spacing being maintained by segregating the filaments (16) with the projecting spikes (26).

4. The method as defined in Claim 1, slotted grooves being positioned in spaced relation on the mandrel (12) to assist in maintaining filament positioning and spacing.

5. The method as defined in Claim 1, including the step of wrapping a circumferential wrap of filament (16) around the mandrel (12) at the end of each pass in order to anchor the filament (16).

6. The method as defined in Claim 1, at least one ring (28)

being provided which is co-axial to and encircles the mandrel (12), the yarn (32) being positioned on a spool (30), which is mounted on the ring (28), the spool (30) orbiting the mandrel (12) to apply yarn (32) circumferentially to the
5 mandrel (12).

7. The method as defined in Claim 6, more than one ring (28) being provided.
- 10 8. The method as defined in Claim 6, the spool (30) being fixed in position on the ring (28) and the ring (28) rotating about its axis.
- 15 9. The method as defined in Claim 6, guides (33) being provided to guide the path of the yarn (32) as it leaves the spool (30).
10. The method as defined in Claim 9, the guides (33) being supported by a support arm.
- 20 11. The method as defined in Claim 1, the orientation of the filament being controlled by selectively rotating the mandrel (12).
- 25 12. The method as defined in Claim 1, the mandrel (12) being moved axially.
13. The method as defined in Claim 6, the at least one ring (28) being moved axially along the mandrel (12).
- 30 14. The method as defined in Claim 1, wherein at least one impregnation box (14) is provided to impregnate filament (16) with resin.
- 35 15. The method as defined in Claim 1, wherein guide rollers (20) are provided to control application of the filament (16).